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Notice of Allowability

Application No.

09/934,059

Applicant(s)

GAIKWAD ET AL.

Examiner

Art Unit

Aaron C. Perez-Daple

2154

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE filed 5/23/05.
2. ☒ The allowed claim(s) is/are 1-25.
3. ☒ The drawings filed on 9/13/04 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☒ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


JOHN FOLLANSBEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Jim Hallenbeck on 8/17/05 and authorized by David Black (Reg. 42,331).

2. Claims 1-25, as amended below, are allowed.
3. Claims 26 and 27 remain cancelled.
4. The Application has been amended as follows.

In the Claims:

1. (currently amended) A method for determining one or more new gains for a controller while the controller continues to control a process towards a target loop transfer function, the controller receiving a process output signal and a process set point signal and providing a controller output signal, the method comprising the steps of:

introducing a disturbance into the controller output signal to form a process input control signal, wherein the process input control signal is input to the process;

calculating one or more new gains for the controller using the controller output signal, the process input control signal, and the target loop transfer function, and without requiring an output signal from the process;

using the one or more new gains in the controller to subsequently control the process.

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25. (currently amended) A tuning device for tuning one or more new gains of a controller while the controller controls a process towards a target loop transfer function, the controller receiving a process output signal and a process set point signal and providing a controller output signal, the gain tuning device comprising:

disturbance generating means for generating a disturbance in the controller output signal to form a process input control signal, wherein the process input control signal is input to the process;

calculating means for calculating one or more new gains of the controller using the controller output signal, the process input control signal, and the target loop transfer function, and without requiring an output signal from the process;

providing means for providing the one or more new gains to the controller, whereby the controller uses the new gains to subsequently control the process.

5. The following is an examiner's statement of reasons for allowance: the prior art of record does not teach or suggest a method and device for tuning a controller including all of the recited features and further comprising calculating one or more new gains of the controller using the controller output signal, the process input control signal, and the target loop transfer function, and *without requiring an output signal from the process*. In particular, in order to calculate the new gains in the closed-loop control methods taught by the prior art of record, an output signal from the process is required. The present invention does not require such an output signal and therefore teaches an improved method and system for determining the gains in a process control system.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Oath/Declaration

6. Applicant is now required to submit a supplemental declaration or oath to correct the deficiencies set forth: the signature for one of the inventors, Gunter Stein, is missing. The supplemental oath or declaration must be filed within the THREE MONTH shortened statutory period set for reply in the "Notice of Allowability" (PTO-37). Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136. Failure to timely file the substitute declaration (or oath) will result in **ABANDONMENT** of the application. The transmittal letter accompanying the declaration (or oath) should indicate the date of the "Notice of Allowance" (PTOL-85) and the application number in the upper right hand corner.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure for demonstrating the state of the art:

US 5,223,778, note teaches using a disturbance to tune the gains towards a target loop transfer function, but requires an output signal from the process for calculating the new gains;


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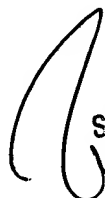
US 5,371,670, note abstract and Fig. 5.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron C Perez-Daple whose telephone number is (571) 272-3974. The examiner can normally be reached on 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (571) 272-3964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 8/17/05
Aaron Perez-Daple

 JOHN FOLLANSBEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

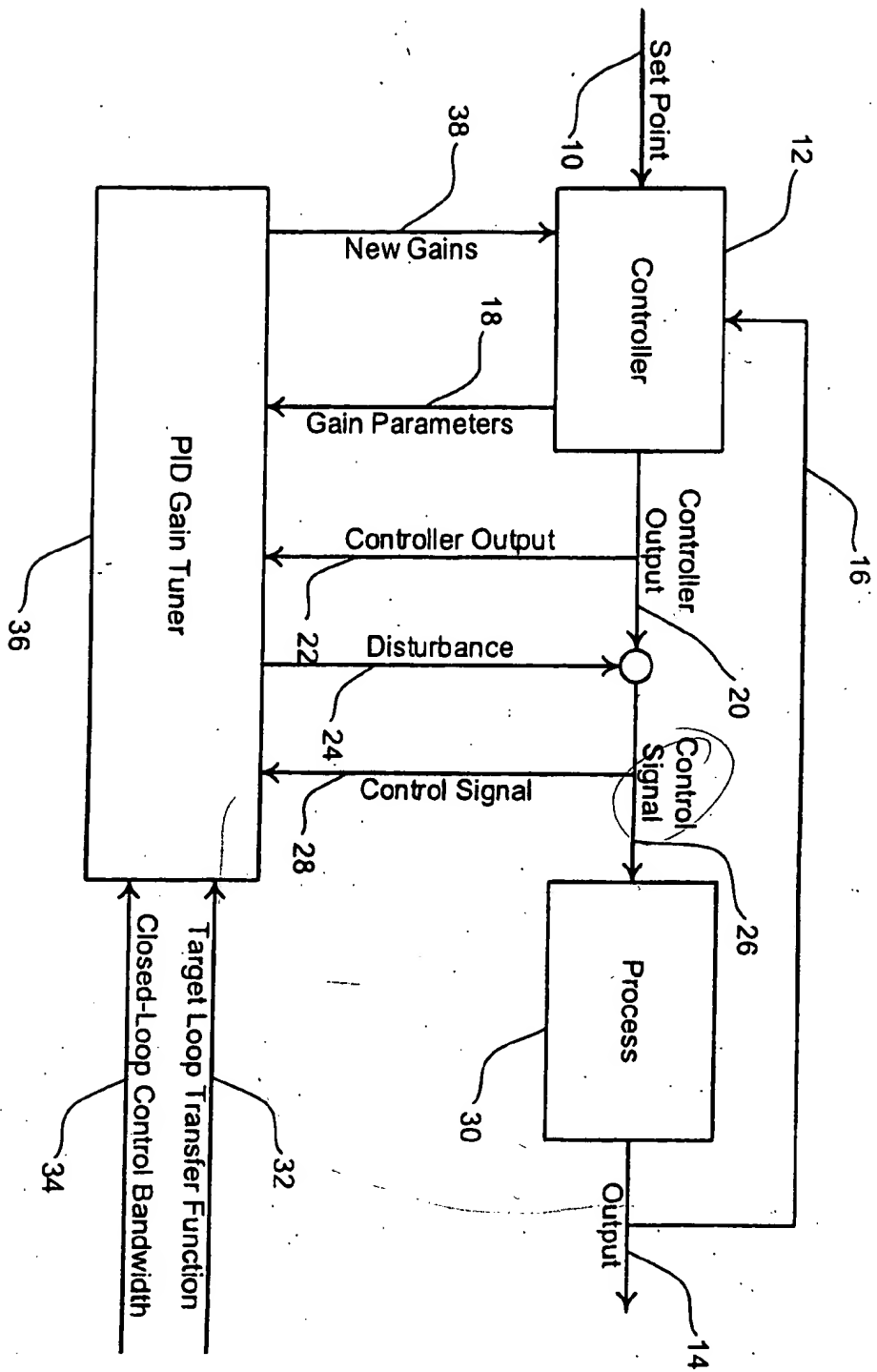


FIG. 1